

**ABSTRACT OF THE DISCLOSURE**

A concatenated optical signal carrying an arbitrary mix of concatenated data traffic is split and transported across a network space between a start node and an end node through a hyper-concatenated connection set up through independent pointer processor state machines. At a start node, the concatenated optical signal is split into two or more hyper-concatenated data streams. If a split occurs at a frame within a concatenated signal, the start node replaces a concatenation indicator of the frame with a payload pointer from a first frame of the concatenated signal and inserts a split indicator in the SS bits of the frame overhead. The hyper-concatenated data streams are transported across the network space using respective ones of a plurality of independent channels. At an end node, the hyper-concatenated data streams are recombined to recover the original concatenated signal. Frames containing split indicators are modified to remove the split indicator and to replace the payload pointer with a concatenation indicator. The advantage is an ability to set up hyper-concatenated connections through a network space containing independent pointer processors, such as legacy cross-connects or ADMs.

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